SYMBIOSIS SKILLS UNIVERSITIES

Sample Entrance Test – B.Tech.

Mathematics

Q1: Which of the following is equation of parabola:

a) $y = ax$
b) $y = ax^2$
c) $y = ax^3$
d) $y = ax^4$

Q2: The value of $1 + \tan^2\theta$ is:

a) $\sin^2\theta$
b) $\cos^2\theta$
c) $\sec^2\theta$
d) $\text{cosec}^2\theta$

Q3: If $y = x^3+2$, then value of dy/dx will be:

a) $3x$
b) $3x^2$
c) $3x^3$
d) $3x^2+2$

Q4: The value of intercept and slope in the equation $y = 5 +3x$ will be respectively

a) 3 and 5
b) 5 and 3
c) 3 and 4
d) 5 and 4

Q5: Two non-zero vectors will be perpendicular to each other, then their

a) cross-product will be zero
b) dot product will be zero
c) both (a) and (b) will be possible
d) none of these correct

Physics

Q1: When a light travelling in a certain medium falls on a surface of another medium, a fraction of it returns back to the same medium. This phenomenon is known as:

a) reflection
b) refraction
c) interference
d) diffraction

Q2: If dQ is heat given to any system, dW is work done by the system and dU is change in internal energy of the system, then first law of thermodynamics is given by equation:

a) $dQ = dU + dW$

b) dQ = dU – dW
c) dW = dU + dQ
d) dQ > dU + dW

Q3: Which of the following is an example of a simple harmonic oscillation.

a) a ball traversing a parabolic path.
b) a simple pendulum (string attached to a fixed mass).
c) a car moving on a straight track.
d) an object lying stationary on a table.

Q4: An electron is a particle with charge:

a) positive
b) negative
c) neutral
d) none of the above

Q5: Which of the following measuring instrument can measure current in an electrical circuit:

a) fluxmeter
b) voltmeter
c) barometer
d) ammeter

Chemistry

Q1: The valency of C atom is

a) 2
b) 3
c) 4
d) 5

Q2: How many double bonds are present in benzene molecule?

a) 2
b) 3
c) 4
d) 5

Q3: The IUPAC name of **H_3C-CH_2-CH_2- OH** is

a) Propan-1-ol
b) Propan-3-ol
c) Propan-1-one
d) Propan-1-aldehyde

Q4: The number of electrons in an atom with principle quantum number of 3 is

a) 6
b) 12

c) 18
d) 24

Q5: The value of Avogadro's number is

a) 6.023×10^{-23}
b) 6.023×10^{23}
c) 6.023×10^{-19}
d) 6.023×10^{-34}

Reasoning

Q1: 1, 4, ___, 16, 25. Find the missing number.

a) 6
b) 9
c) 11
d) 13

Q2: 1, 2, 4, 8, —, 32, 64. Find the missing number.

a) 12
b) 14
c) 16
d) 18

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